RISK RADAR
USER'S GUIDE

Version 1.1
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SOFTWARE PROGRAM MANAGERS NETWORK
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Abstract

Risk Radar is a risk management database that helps project managers identify, prioritize, and communicate project risks in a flexible and easy-to-use form. Risk Radar provides standard database functions to add and delete risks, together with specialized functions for prioritizing and retiring project risks. Each risk can have a user-defined risk management plan and a log of historical events. A set of standard short- and long-form reports and viewgraphs can be easily generated to share project risk information with all members of the development team. The number of risks in each probability/impact category by time frame can be displayed graphically, allowing the user to visualize risk priorities and easily uncover increasing levels of detail on specific risks. Risk Radar also provides flexibility in prioritizing risks through automatic sorting and risk-specific movement functions for priority ranking. Risk Radar Version 1.1 runs only on PCs, and requires Microsoft Access 2.0, 95, or 97 for operation.

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I. Background

1. Introduction

Risk Radar is a risk management database that is designed to help project managers identify, prioritize, and communicate project risks in a flexible and easy4o-use form. Risk Radar provides standard database functions to add and delete risks, together with specialized functions for prioritizing and retiring project risks. Each risk can have a user-defined risk management plan and a log of historical events. A set of standard short- and long-form reports can be easily generated to share project risk information with all members of the development team. The number of risks in each probability/impact category by time frame can be displayed graphically, which allows the user to visualize risk priorities and easily uncover increasing levels of detail on specific risks. Risk Radar also provides flexibility in prioritizing risks through automatic sorting and risk-specific movement functions for priority ranking.

Risk management is not a hard science, and it requires that the risk manager combine the best known technical information with good professional judgment. A guiding principle in Risk Radar development was to automate functions that clearly benefit the user, but also allow flexibility for individual judgment. For instance, risks can be prioritized automatically by clicking on a button to sort according to risk exposure, but the user also has the flexibility to move risks individually up and down in the priority ranking irrespective of numerical factors. Each risk has a historical events log so that the user can record decisions and events that influence how the risk was managed. A key element of risk management is maintaining the set of project risks so that the most important risks are prioritized from the perspective of the project team. Risk Radar attempts to facilitate this process to be as simple and straightforward as possible.

Risk Radar is designed with the rationale that the most important part of risk management is to identify the highest-priority risks and to keep attention focused on them as a project evolves over time. Risk management is a dynamic and proactive process that requires continuous vigilance. What is an important risk this month might not be important next month. It is impossible to predict all the risks a project might face in the future, so you shouldn't even try. But you should be watchful for future events or conditions that could be a major threat to your project's success. Risks will pop up, be mitigated, and then hopefully be relegated to a much lower level of concern, and eventually be retired. Other risks will likely step in to replace them. Risk Radar does not discover risks for you; you must do that. But once a risk is identified, Risk Radar allows you to fully describe the risk and prioritize it relative to the other risks your project faces. The key to successful use of Risk Radar is to keep the highest-priority risks at the top of your risk-ranking list and to focus your mitigation efforts on them. With Risk Radar you can describe a risk, set up a risk mitigation plan, prioritize it relative to all the others in the database, and record events and decisions that affect the risk over time. Risk Radar includes a full set of standard short- and long-format reports as well as a viewgraph-formatted report for communicating risk priorities and mitigation efforts to upper management and the entire project team.

To perform the prioritization process, you must make some subjective estimates based on professional judgment of the probability that a risk will occur and its negative impact on the project if it does occur. You assign a probability of between 1 and 99 percent and an impact value of between 1 (for very low) to 5 (for very high) for each risk in Risk Radar. The program then multiplies these numbers together to calculate a risk exposure for the risk. Although we could try to break a risk impact down and quantify all kinds of impacts areas, such as schedule impact in terms of days or cost impact in terms of dollars, in reality the current state of the practice of project risk management does not permit us to quantify these impacts with any degree of accuracy, and adding multiple impact areas adds complexity to the risk management process while providing little quantitative benefit. The 1 to 5 rating system is just that - a subjective rating of the total impact the risk could have on your project. Risk Radar does not presuppose what an impact value of4 or 5 means to your project. You must come up with the definitions yourself and stick to them. These numbers are, and will continue to be for the foreseeable future, guesses based on past professional experience. Risk Radar uses risk exposure purely as a means to help rank risks relative to one another, but it assumes these numbers have little or no meaning in an absolute sense. Inmost cases it would be inappropriate to compare risks across projects based solely on numerical factors such as probability, impact, or exposure. The best we can hope for is that numerical risk values will be used consistently by the project team over the life of the project so there is a consistent ranking of risks to keep the most important ones at the top of the ranking list.

Time must also be considered when managing risks. Risks are fundamentally characterized by negative impacts that might occur in the future. Although some risks are tied closely to discrete events, such as a critical piece of software that must be received from a supplier at a particular date, Risk Radar is more general and allows you to identify an impact time frame over which the risk's impact might materialize. As a project draws closer to one of these time frames, this will be calculated by the program and show up as the number of days to the impact time frame and its impact horizon in terms of near-, mid- and far-term for each risk. Is a risk with a risk exposure of 2.5 and a near-term impact horizon more important than a risk with a risk exposure of 4.5 and a far-term impact horizon? Risk Radar will not answer that question, but it will provide you with the tools to help you answer that question and keep the most important risks at the top of the priority ranking.

2. How Does Risk Radar Work?

Risk Radar operates in Windows 3.1 or Windows 95/98, and is a Microsoft ~S) Access database application. You must have MS Access 2.0, 95 or 97 on your computer for it to run. an MS Access database application is identified by a filename with an extension of "MDB,"-for example RISKDB.MDB. An MS Access database application includes all the data tables, application screens, Visual Basic code, and related material together in one file. Bach project will have its own separate Risk Radar database, and therefore its own MS Access database file.

A unique feature of MS Access is that in most cases when you change the data on the screen it is changed at the same time in the underlying database file. This means you do not have the ability to undo changes simply by exiting Risk Radar and opting not to save the changes as is the case

_ with other applications such as MS Excel or MS Word. The word to the wise is that changes to your Risk Radar databases should be made carefully. You should also back your database up frequently, as you would any mission critical data. You should also consider keeping versions of your risk databases stored in backup files at various milestones or at regular intervals so that you can recreate the database in case something untoward happens to your original.

Risk Radar Version 1.1 is currently a single user application that is appropriate for use on a. single PC. It does not include the security features that would be required for a network-based application where many users access the same database. Users with advanced experience with MS Access can add their own security features using standard MS Access operations. See the MS Access User's Manual for details.

3. Starting Risk Radar

If you have installed the correct version of Risk Radar (see installation instructions below) and if MS Access has been properly installed on your system, you should be able to click on any Risk Radar database filename (for instance RR1 1 .MDB) in the Windows 3.1 File Manager or Windows Explorer in Windows *95/98* and it will automatically start MS Access and from there Risk Radar. Another option is to start MS Access and then use the standard File/Open menu selections to open your Risk Radar MDB file.

Although Risk Radar uses MS Access, in general you do not need to know MS Access to use it. Risk Radar overlays its own screens on top of MS Access to help you manage risks without having to use or learn MS Access. The only exception to this is to print reports for which you use the standard report-printing screens in MS Access. However, the report-printing features of MS Access are very similar to those in other MS Windows applications and should be straightforward to use.

This release package includes two risk database files: an example risk database with example data, and an empty risk database with no data. To create a new risk database for a project, copy the empty risk database file into a new file with a meaningful name for your project and then start entering data. Use the example risk database to experiment with Risk Radar and explore its functions and reports. The specific files in this release are described below and in the README.TXT file.

4. New Features in Risk Radar Version 1.1

Version 1.1 includes the following new features:

- The impact date for each risk has been replaced by an impact time frame defined by the earliest and latest dates during which the impact of a risk might materialize. Another option use the keywords "BOP" for Beginning of Project and "EOP" for End of Project to define time frames that span broad areas of the schedule.
- Risks can be imported from Version 1.0 and Version 1.1 databases. You have the option of viewing the risks to be imported and selecting them one at a time, or you can import all risks from a previous Risk Radar database into an empty database all at once.

- Predefined categories can be set up for the Risk Area, Status, and Control attributes of a risk to make

entries in those fields more consistent.
- The Edit Risk Short Form screen has been organized to make the best use of a single screen by using tabs to access selected information.
- Viewgraphs can now be created directly from the reports section.
- Miscellaneous changes and improvements have been made to the internal structure of the database tables and screens.

5. Hardware and Software Requirements

The following minimum configuration is required:
- IBM PC (or compatible) 386DX or better (486DX or better is recommended)
- Mouse
- 8MBRAM
- VGA Monitor
- Windows 3.1 or higher
- MS Access 2.0 or higher

6. The Software Program Managers Network

Risk Radar was developed by the Software Program Managers Network (SPMN), which was established in 1992 by the Assistant Secretary of the Navy for all Services and OSD agencies. The Network's goal is to identity highly effective practices from industry, government, and academia, and to convey them to software managers and practitioners to improve the cost, schedule, and performance of weapons, command and control, and information Systems. These best practices and lessons learned are disseminated through direct satellite broadcasts, the NetFocus newsletter, workshops, symposia, guidebooks, videotapes, and other media. For more information about the SPMN, contact Norm Brown, Executive Director, at tel 703-521-5231, fax 703-521-2603 or E-mail to SPMN@AOL.COM.

7. Disclaimer Notice

damages for any cause whatsoever, and regardless of the form of the action (whether in contract, tort (including negligence), product liability or otherwise), is limited to the U.S. Government under Contract No. N00039-94-C-0153.

8. Acknowledgments

Risk Radar was created by John E. Moore, Ph.D., of Computers & Concepts Associates, a division of Integrated Computer Engineering, Incorporated, for the Software Program Managers Network. It was developed in MS Access 2.0 and then converted to MS Access 95 and MS Access 97 to cover both Windows 3.1 and 95/98 platforms. We would like to thank the many beta testers and users who provided comments and suggestions to make Risk Radar a successful risk management tool.

II. Installing Risk Radar

Risk Radar is an MS Access database application. You must have MS Access 2.0, 95, or 97 on your computer to use it. Before installing Risk Radar, you must know which version of MS Access you have so you will install the correct files. Windows 3.1 systems can only support MS Access 2.0. Although Windows *95/98* systems typically have MS Access 95 or 97, in some cases MS Access 2.0 might be present instead. The MS Access 95 and 97 database files are not compatible with MS Access 2.0. Although MS Access 2.0 files can usually be converted by MS Access 95 or 97, there are minor differences between the Microsoft versions that required special programming in Risk Radar. Different sets of files are available in this release for MS Access 2.0, 95 and 97 to avoid difficulties. Risk Radar is typically distributed by either an installation floppy disk or from a download file from the Internet. Note that the naming convention below is based on the MS Access version numbers where Access 95 is also known as Access 7.0 (hence the file name RRI 1_7MDB) and Access 97 is also known as Access 8.0 (hence the file name RRi i~8.MDB).

1. Floppy Disk Installation

If you are installing from a distribution floppy disk, there are three different disks, one for Access 2.0, Access 95 and Access 97. If you do not have the proper disk for your version of Access, you can download the latest version from the SPMN Web site at www.spmn.com.

For installing Risk Radar from an installation floppy disk, perform the following steps:

1. Insert the disk in the 3-1/2 inch drive (either A: or B:).
2. For Windows 3.1, from the Program Manager window click on File and Run. Then enter A:SETUP (or B:SETUP) in the Command Line box. For Windows ***95/98,*** from the desktop click on Start and Run. Then enter A:SBTUP (or B:SBTUP) in the Open box.
3. Follow the instructions given by the Setup program. This program will create the directory and sub-directory C:\RISKRADR\Vi 1 on your hard drive. The "Vii" stands for Version
   1.1. Setup then copy the appropriate files to your hard drive.

2. Compressed File Installation

As with the floppy disk installation, you must know which version of MS Access you have, either 2.0, 95, or 97. If you receive a compressed zip file, either from an attached E-mail or our Web site, there are three possible compressed files, one for Access 2.0, Access 95, and Access 97. The files are:

- RR1 1.ZIP contains the Risk Radar V1.1 compressed files for Microsoft Access 2.0.
- RRi 1_7.ZIP contains the Risk Radar Vi .1 compressed files for Microsoft Access 95.
- RRi 1_8.ZIP contains the Risk Radar V1.i compressed files for Microsoft Access 97.

Copy the ZIP file into a temporary directory on your hard drive. Create a directory C:\RISKRADR\VII and decompress the ZIP file into this directory.

3. MS Access 2.0 Risk Radar Files

Once you have installed Risk Radar Vi .1 for MS Access 2.0, the files in the C:\RISKRADR\Vl 1 directory should be:

README.TXT	Installation and miscellaneous instructions.
RR1 1 .MDB	The Risk Radar database with example data. This MS Access file requires MS Access 2.0.
RR1 1NW.MDB	An empty database you can use to create new databases.
USER11a.DOC	This document.
PROBREPT.XLS	An MS Excel 5.0 workbook for recording comments and problems.

4. MS Access 95 Risk Radar Files

Once you have installed Risk Radar Vl.l for MS Access 95, the files in the C:\RISKRADR\V1 1 directory should be:

README.TXT	Installation instructions.
RR1 1_7.MDB	The Risk Radar database with example data. Equivalent to RR1 1 .MDB above.
RR1 1NW_7.MDB	An empty database you can use to create new databases. Equivalent to RRI INW.MDB above.
USERlla.DOC	This document.
PROBREPT.XLS	An MS Excel 5.0 workbook for recording comments and problems.

5. MS Access 97 Risk Radar Files

Once you have installed Risk Radar VI .1 for MS Access 95, the files in the C:\RISKRADR\Vl I directory should be:

README.TXT	Installation instructions.
RRI 1_8.MDB	The Risk Radar database with example data. Equivalent to ~ I .MDB above.
RRI lNW_8.MDB	An empty database you can use to create new databases. Equivalent to RRl 1NW.MDB above.
USERI la.DOC	This document.
PROBREPT.XLS	An MS Excel 5.0 workbook for recording comments and problems.

6. Problem Reporting and Suggestions

Any defects you discover or suggestions for improvement will help make Risk Radar a useful tool for other project managers. Use the Excel workbook PROBREPT.XLS to register problems or suggest improvements. E-mail the file to the address below. Should you encounter problems installing or running Risk Radar, or if you have any questions, contact:

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III. Creating a New Risk Radar Database

Version 1.1 requires you to create a new Risk Radar database file for each new project. The installed file with "NW" in the name (NW-NEW) is an empty database you will use to create new databases. For Access 2.0 you should have RRl lNW.MDB, for Access 95 RR1 lNW_7.MDB and for Access 97 RR1 lNW_8.MDB. You must use this file as a template to create new databases. If you enter data into the "NW" database, it cannot be easily reused again. To create a new database:

1. Use Windows 3.1 File Manager (or Windows *95/98* Windows Explorer) to make a copy of the "NW" file into a new file. For instance, your new file might be called MYPROJCT.MDB.

2. Open the database by double clicking on it in File Manager (or Windows 95/98 Explorer). MS Access and then Risk Radar will be started automatically by the Windows system.

3. Click on the "Setup Project" button and enter the name of the new project, the number of days to define short-term, mid-term and long-term time frames, etc. Click on "Close." Use the "Edit Risks Long Form" screen to enter new risks into the new database.

IV. General Instructions

1. Automatic Start-up

When you start Risk Radar by either double clicking on a Risk Radar file (for example RR1 1 .MDB) or by opening a Risk Radar file from within MS Access, the main screen will be displayed automatically. This is your home base from which to access all functions in Risk Radar.

2. Accessing MS Access Functions and Risk Radar Tables

You have access to most of the standard features available in MS Access through the menu bar at the top of the screen. These MS Access features will not be described in this guide unless they are required for running Risk Radar (for example, see the description for printing screens below). If you are interested in exploring MS Access further, you should consult the MS Access Users Guide or one of the many good reference and teaching books on MS Access.

Although the Main Screen prevents you from looking at the underlying database tables, you can close the Main Screen and you will be inside MS Access in its standard database mode. Just click on the close icon (the small box with the "X" in it in the upper right hand corner of the main screen), or click on File and then Close on the menu bar.

3. Printing Screens

Although the Reports portion of Risk Radar provides you with preformatted reports, there might be occasions when you want to print a Risk Radar screen itself for use in a presentation or a report. To print a screen, click on File on the top menu bar and then Print. See the documentation for MS Access for details. Another method of capturing screen images is to press the Print Screen key on your keyboard. This places a BMP-formatted image of the current screen in the MS Windows copy buffer Then go to another graphics application such as MS Paintbrush and click on Edit and then Paste to paste the image into the application. From there you can print the screen image. See the documentation for Windows and your graphics application for details.

V. Main Screen

The buttons on this screen are your home base from which to input, modif~r, import, prioritize, display, and generate reports on a project's risks. Click on a button to open screens that will help you perform the appropriate operations. Note: The word "click" in this document means a lefi mouse button click. If a right mouse button click is meant, it will be called out specifically as a "right mouse click."

Set Up Project Button

The **Set Up Project** screen allows you to set project specific information, such as the title of the project, in one place. When these values have been set once for a project, they will not likely change.

Edit Risks Long Form Button

The Edit Risks Long Form screen is the primary screen for editing risks. This screen allows you to add new risks, modify existing risks, delete risks, and retire risks. The screen is called a long form because it requires more than one computer screen to view it all. In this screen, the risk data elements have plenty of room for field descriptions. This screen has buttons that allow you to easily add new risks, delete risks, and retire risks.

Edit Risks Short Form Button

The **Edit Risks Short Form** screen has many functions similar to the long form described above, but presents all of the information for a risk on a single screen without scrolling. This means there is less room for field descriptions. Once you are familiar with the fields on the long form, you will probably use the short form when the data on a risk has to be updated. The major functional difference between this form and the long form is that it does not have buttons to add, delete, and retire risks.

View Risks Button

The **View Risks** screen is a graphical display of risks by risk exposure category and impact time frame. This screen allows you to click on risks to uncover increasing levels of detail.

View Retired Risks Button

The **View Retired Risks** screen provides a simple table of all risks that are no longer considered a threat and have been retired from active risk management. This information might be useful in formulating new risks and for project postmortems.

Prioritize Risks Button

The **Prioritize Risks** screen is a central part of Risk Radar. It provides means for prioritizing risks using automatic sorting buttons, manually moving risks in the priority

ranking, and finally renumbering the priority rank of all risks. You will use this screen for prioritizing risks, which is a principal element of risk management.

Reports Button

The **Reports** screen contains a set of predefined reports in both long-form (one risk per page) and short-form (one risk per line) formats that can be generated by clicking a button. You will use this screen to generate reports for upper management and the rest of the project team.

Exit Risk Radar Button

The **Exit Risk Radar** button will exit both the Risk Radar database and MS Access.

VI. Set Up Project Screen

The **Set Up Project** screen allows you to set project specific information, such as the title of the project, in one place. Once these values have been set for a project, they will not likely change. The data entry fields are:

Project Title

Enter the name for the project here. This will be used to identify the project in reports.

Impact Horizon Definitions

The fields shown here define the number of days that will be used to define short term, mid term, and long term for classifying the impact horizon of a risk on this project. See the Edit Risks Long Form screen description for the definition of Impact Horizon.

Risk Area Categories

This list of categories allows you to customize the text options that are available for selection in the Risk Area field to suit the needs of your project or company standards (see the Edit Risks Long Form Screen for a description of the field). The list of categories established here will be available to the user via a drop-down selection list. To add a new category, start typing in the blank line at the bottom of the list. The list will always be presented to the user in alphabetical order. To delete an item, delete all the text including any blank spaces. The text in a category can be changed using standard keyboard and mouse functions. Note that the category selection lists only provide a set of selection options that are inserted into the database as a text string. If you change the text in a category here, it will not be reflected in the previous use of that category in the database, only in new occurrences.

Status Categories

This list of categories allows you to customize the text options that are available for selection in the Status field (see the Edit Risks Long Form Screen for a description of the field). The Status field is important because it is used in the database to determine which risks are active, which are retired, and which have been deleted. The reserved keywords "Retired" and "Deleted" are also used in the database in this field, but they should not be shown to the user in this list because the user might accidentally select one of these without fully knowing the consequences. Adding and deleting categories from the list is the same as that for the Risk Area categories described above.

Control Categories

This list of categories allows you to customize the text options that are available for selection in the Control field (see the Edit Risks Long Form Screen for a description of the field). Adding and deleting categories from the list is the same as that for the Risk Area categories described above.

VII. Edit Risks Long Form Screen

1. Description

This is the primary screen for modif~ing risks and editing risk records. This screen allows you to add new risks, modi~ existing risks, delete risks, and retire risks. The screen is called a long form because it provides a description of each field that requires you to scroll down using the right scroll bar to view all input fields. This screen has buttons to add, delete, and retire risks. Fields that should have an input value are marked with a "~." Input in the other fields is optional. Units or ranges are indicated in parentheses. Features that are common to this screen and many of the others are described in the Common Features section below.

2. Features

Prev. Button

Click on this button to see the previous risk. Risks are ordered for this screen according to their ID. You can also use the standard MS Access record navigation icons at the bottom of the screen for moving among risk records in the database. The left arrow icon, for instance, also moves to the previous risk. The record navigation icons offer more capabilities than the Next and Prev. buttons. See the MS Access user's guide or click on Help to learn about these features. If you are at the first risk in the database, you will get a warning message when you click this button, and you will be returned to the first risk.

Next Button

Click on this button to see the next risk. The right arrow navigation button at the bottom of the screen performs the same function. If you are at the last risk in the database, clicking on Next will allow you to enter a new risk, which is the same thing as clicking on the Add New Risk button (see below).

Add New Risk Button

Clicking on this button will start the process of adding a new risk to the database. A standard long form risk screen will appear with all fields empty except the ID field and a few others with default values. The ID is set automatically by the database, so you cannot change it. By entering data into any of the other fields, a new risk will be created in the database and a new ID number will be put automatically in the ID field. If you don't enter any data on this screen, and you either close the form (see the Close button below) 'or you move to the previous risk (see Prev. button above), a new risk will not be added to the database.

Note that default values will be assigned for Probability, Impact, and Rank. In addition to Title, these are the only fields that absolutely require data in them. The defaults are not "average" values, so you should change them to reflect the actual risk and re-prioritize the overall risk ranking as soon as possible. A value should be in these fields at all times to ensure consistent reporting and displays in Risk Radar.

Delete Risk Button

This button will remove the risk from the list of active risks. A warning message pops up to verify this action. Use this button to remove risks that are poorly formulated or have been replaced by another risk. Consider using the Retire Risk button before using this button. A "deleted" risk record is not actually deleted from the database, but its Status field is given a value of "Deleted," which means the record will not show up in the list of active or retired risks. It is possible to restore a deleted risk to either active or retired status, but this requires that you enter into the risk database table itself in MS Access and then change the value in its Status field to one of the status categories in the Set Up Project screen or "Retired."

Retire Risk Button

This button will move the current risk and its mitigation plan and historical events log from the list of active risks to the list of retired risks. The risk is not actually in a separate table, but its Status field is changed to "Retired" which makes it show up on the list of retired risks instead. It is possible to restore a retired risk to active status, but this requires that you enter into the database tables in MS Access, open the table **tblRisk,** and then change the value of the Status field in the appropriate risk record to one of the status categories in the Set Up Project screen, such as "mitigate." See View Retired Risks **Screen** section below for information on viewing retired risks.

Close Button

This button will close this screen and return you to the Main screen. See discussion at the end of this section.

ID Field (Automatic)*

The ID is the unique identifier for a risk. This ID number is set automatically by the system when new risks are added. It cannot be modified. See the discussion above on Add New **Risk** Button for details.

Title Field*

Enter a short title in this field so the risk can be easily identified in tables and reports;

Rank Field

This is the current priority ranking of the risk relative to all other risks. Rank 1 is highest priority, rank 2 next, and so on. Although you can assign a priority ranking here, the **Prioritize Risks screen** described below is designed to help you set this value. New risks are automatically assigned a rank of zero, which will temporarily place them at the top of the priority ranking until the rank is properly assigned. The "Out *of*" field shows the total number of active risks in the database. The **Prioritize Risks** screen should always be used to maintain the proper rank of risks. If you do not careflilly maintain the risk ranking with the **Prioritize Risks** screen, it is possible for more than one risk to have the same rank number or for there to be missing rank numbers or

in appropriate rank numbers (i.e. zero).

Description Field

A full description of the risk and its impact on the project can be given here. Do not include information covered in the other fields. Use the Enter key to insert paragraphs to make the text easier to read. Unfortunately, you cannot enter tabs in the text.

Status Field

This shows the current status of this risk in your risk management process. For instance, you may indicate whether it is actively being mitigated, being watched, on hold, etc. The options for the pull-down menu are set in the Set Up Project screen (see above). See the description above for a more detailed discussion of the importance of this field and the reserved keywords that should not be used.

Probability Field (%)*

This contains the current estimate for the probability (in percent) that the risk will occur over the impact time frame (see below). Values from 1% (extremely unlikely) to 99% (almost certain) are valid. This value will be based on professional judgment and past experience-in other words, most of the time it is an educated guess. This value will likely change over time as the risk is actively managed. Note that a risk cannot have a probability of 0% because that would mean the impact of the risk could never materialize, which would by definition mean it is not a risk!

Impact Field (1 to 5)*

This represents the current estimate for the impact the risk will have on the project if it materializes. Like probability above, this will likely be an educated guess. An impact is an undesirable consequence, which would negatively influence your project. The values of 1 to 5 represent a subjective ranking of the impact: 1 very low, 2=low, 3--moderate, 4=high, 5=very high. Since there are many impacts a risk might have on a project, such as greater costs, delayed schedule, reduced quality, and so forth, you should establish guidelines for your particular project for assigning a consistent impact category for different risks and projects. As an example, you might designate that impact costs of less than $1000 correspond to an impact of 1; $1,000 to $10,000 an impact of 2; etc. You will likely change the impact value over time as the risk is actively managed. The primary purpose of the probability and impact numbers are to help rank risks relative to one another. The absolute value of these numbers is not as important as their consistent use over the life of the project.

Risk Exposure Display

This is not a data entry field, but a calculated value, where risk exposure equals probability times impact. Risk exposure is a standard quantitative measure of risk, and is used to compare risks with one another. Because of the limits on the ranges of both

probability and impact, risk exposure will have a value between .01 (very low exposure) and 4.99 (very high exposure).

Impact Time Frame Fields*

The first field is the earliest date the risk impact could materialize and the second field is the latest date it could materialize. Dates must be entered in any of the standard formats such as "7/11/97." Note that the keyword "BOP," meaning beginning of project, can be placed in the first field and the keyword "EOP," meaning end of project, can be placed in the second fie[d. These keywords free you from having to assign specific dates for risks that cover these time frames. For instance, to describe a risk that could occur anytime during the life of the project, such as "The project leader might quit," you would enter "BOP" in the first field and "EOP" in the second.

Days to Impact Time Frame Display

This represents the number of days from the present to the impact time frame (see above). If the earliest and latest dates of the impact time frame are both in the future, this number will be positive and will be the number of days between now and the earliest impact time frame date. If the impact time frame spans the present, this number will be zero. If both the earliest and latest dates of the impact time frame are in the past, the number will be negative and will be the number of days between now and the latest date. An active risk should never have a negative value in this field, which means the risk is in the past and is therefore no longer a threat. Negative numbers mean the risk needs to be examined more closely, either to retire it or change its impact time frame.

Impact Horizon Display

Using the definitions set up in the Set Up Project screen, the program will use the Days to Impact Time Frame value to assign the risk to an impact horizon category. NEAR represents near term, Mf D represents mid term and FAR represents far term.

Date Identified Field

This is the date the risk was first identified. Only standard date formatted text such as *"7/15/97"* or "7-Ju1-97" is valid as input.

Responsible Person Field

This is the person responsible for tracking or managing the risk.

Program Areas Field

Describe project areas or components that are affected by the risk here. This might include specific products or configuration items that would be impacted if the risk were to materialize.

Affected Phases Field

Describe development phases (such as requirements or design), work packages, or work activity network components that identify which phase would be impacted if the risk were to materialize.

Risk Area Field

Use this field to assign the risk to a risk category. The pull-down menu provides a predefined set of Risk Area categories (see Set Up Project screen above).

Control Field

Use this field to indicate whether the source of the risk is internal or external to your organization. See the Set Up Project screen for setting the categories in the pull-down list.

Contingency Plan Field

The contingency plan is the set of actions that you will take should the risk materialize. If the plan is extensive, this will likely point to another document.

Risk Mitigation Description Field

Use this field to describe the approach or other background information regarding the mitigation efforts that will be taken on the risk. This field can be used in conjunction with the Risk Mitigation Steps Table (see below) to describe the intention of the mitigation efforts and how they will be done.

Risk Mitigation Steps Table

This table allows you to specify steps you wish to take in mitigating the risk. Each step has a:

Step	Number that is user-defined, but you will probably start at I and increment upwards.
Title	Short description of the actions to be taken.
Person	The person responsible for carrying out these actions.
Due Date	Date the step should be completed.
Completed?	A check mark to indicate if the step was completed successfully.

The steps in this table are sorted according to step number when you first view this risk. Therefore, you can reorder or insert new steps by changing step numbers, leaving this risk and coming back to it.

Historical Events Log Table

This table allows you to record events about the risk that might be useful in evaluating its importance or in justifying specific actions that were taken. For instance, external events might occur that cause you to change the impact or probability of the risk. This historical log can serve as a repository of thoughts and decisions that affect how the risk was

perceived, mitigated, and hopefully retired. Bach event has a:

Date Pertinent date for information, such as the date an event occurred, the date a decision was made, etc.

Person Person most knowledgeable about the event.

Description **A** short description of the event.

The historical events in this table are sorted according to date when you first view this risk.

3. Common Features

The Close button and the record navigation buttons present on this screen are common to many of the other Risk Radar screens.

Close Button

Clicking on this -button will close the current screen and return you to the screen it was called from. This button is found in the upper right hand comer. The only exception to this rule is when you are viewing reports that have been generated by MS Access report writer. In that case, the button with a "closing door icon will close the screen. You can also use the "close window" icons which is one of the three small window-control icons found on most MS Windows screens. Warning! There are two sets of these icons, one for the MS Access window in the far upper right hand corner, and one for the Risk Radar application window just below it. Use the lower one of these sets. If you click on the far upper right "close window" icon, it will close MS Access entirely, not just the current Risk Radar screen.

Icons Record Navigation

At the bottom of many of the screens that display risks is a set of record navigation icons that are standard in MS Access. Although some of these functions are duplicated in the buttons at the top of the screen, advanced users might find these icons useful. The icons provide another means to move through the records of a table being displayed on a screen. The double left arrow moves to the first record in the table. The left arrow moves to the previous record from the present. The number shows the current record number. By changing this number, you can move to any predetermined record directly. The right arrow moves to the next record. The double right arrow moves to the last record.

It is possible to add a new risk in the Edit Risks Long Form and Edit Risks Short Form screens using the record navigation icons. Click on the double right arrow to move to the last record. Then click on the single right arrow and you will get an empty screen with the default values in appropriate fields just as if you had clicked on the Add New Risk button. As soon as you enter data in any of the fields, a new record will be created in the table. If you "navigate" out of the empty screen (left arrow, double left arrow, or close screen) without entering any data, no new record will be created. If you accidentally add a new record, you can remove it using the Delete button.

VIII. Edit Risks Short Form Screen

This screen has the same data fields as the Edit Risks Long Form, only the format is more compact to fit on a single screen for easier viewing and editing. Unfortunately this means less room for on-screen field descriptions. Once you become familiar with the fields and what they mean, you will likely use this screen for day-to-day updating of risk data. Since the data fields are exactly the same here as in the Edit Risks Long Form, those definitions won't be repeated here.

A major difference between this screen and the Edit Risks Long Form is that it does not have any of the button functions. Use the standard MS Access record navigation icons at the bottom of the screen to step through the risks and even add a new risk. These features were discussed above. You cannot delete or retire a risk from this screen; you must use the Edit Risk Long Form for that. Close this screen by clicking on the "Close Window" icon in its upper right hand corner.

To fit all the informati6n about a risk from the database on one screen, tabs are used at the bottom of the screen to access the Contingency Plan, Risk Mitigation Description, Risk Mitigation Plan, and the Historical Events Log. Click on one of the gray tabs and its information will pop to the front for viewing and editing.

IX. Import Risks Screen

Risks can be imported into a Risk Radar database from other Risk Radar databases. This allows an easy method for migrating risk databases created in a previous version of Risk Radar, or for importing specific risks from another database that might be appropriate for reuse. Enter the full path name for the risk database in the Import Database File Name field. After clicking on the OK button, the program will determine automatically if the import database is in Risk Radar V1.0 or V1.1 format and will display the appropriate import screen.

1. Import Risks from a RR V1.O Database

This screen displays each risk in the import database in a long-form format. There are two different methods of importing risks, which are described in the descriptions for the **Import This Risk** and **Import All** buttons below. The basic restrictions are that, if the existing database is a new database with no risks in it, you can import all of the risks from the import database simply by clicking on the Imp6rt All button. Otherwise you will have to import risks one at a time using the Import This Risk button. The Prev. and Next buttons have the same functions for moving through the risk records as described previously.

Import Active/Retired Risks Pull-Down Selector

Use this pull-clown selector to choose between viewing the active risks or the retired risks in the import database.

Import This Risk Button

This button will execute a procedure to import this risk into the database. The warning message describes some of the assumptions that will be made concerning differences in the format of Risk Radar V1.0 and V1.1 databases. The import risk ID will likely not be preserved after it is imported because the program automatically assigns it the next available number in the sequence. If you have a need to track a risk back to its previous database, you should write the message down and record the changed ID numbers in the historical events log.

Import All Button

This button will import all risks, both active and retired, from the import Risk Radar Vi .0 database into this Vi. 1 database. This button is active only if the database is new and without any risks in it. All IDs will be preserved between the import and new databases using this method. To create a new database that is empty, see the section **Creating a New Risk Radar Database** above.

2. Import Risks from a RR V1.1 Database

This screen works identically to the one above with the following exception: when the Import All button is used, all risks, including those that were deleted, are imported into the new database. Otherwise the same restrictions apply:

- The Import All button will only work on a new database.
- You can import risks one at a time from both the active and retired lists but their ID numbers will not be preserved.

IX. View Risks Screen

1. Description

This screen is designed to show you the number of risks in all possible probability/impact combinations, and categorized according to time frame. By clicking on any of the grid cells, you will be given a list of the actual risks in that probability/impact bin; and by clicking on the Risk ID of the displayed risks, you will be given a full description in short-form format. There are six primary elements on the screen:

Legend Box

Describes graphical elements used in the five Probability/Impact grids. The shading increases from white for low-risk exposure, to light gray for medium-risk exposure, to gray for high-risk exposure. The number in each grid cell shows the number of risks in that grid cell category.

Total No. of Risks Grid

Shows the number of risks in each Probability/Impact grid cell category for all active risks, regardless of Date of Impact. The three shaded zones correspond to risk exposure categories of low, medium, and high. The risks that present the lowest risk exposure are in the lower left hand corner. The risks that present the highest risk exposure are in the upper right hand corner.

Impact Time Frame in Past Grid

Displays the same information as the first grid, except only for those risks whose Impact Horizon is completely in the past. These risks should be examined to determine if they are still active, in which case the Impact Time Frame fields should be updated. If the threat of their impact has already passed, then the risks should be retired (see **Edit Risks Long Form Screen** above).

No. of Short-term Risks Grid

Displays the same information as the first grid, except only for those risks whose Impact Horizon is in the short term, as defined in the Project Set Up screen. The risks in this grid most likely present the greatest threat to the project because they are most likely to materialize the soonest. It is likely your mitigation efforts will concentrate on the risks with the highest exposure in this grid first.

No. of Mid-term Risks Grid

Displays the same information as the first grid, except only for those risks whose Impact Horizon is in the mid term, as defined in the Project Set-up screen.

No. of Long-term Risks Grid

Displays the same information as the first grid, except only for those risks whose Impact Horizon is in the mid term, as defined in the Project Set-up screen.

2. Risks Pop-up Screen

By clicking on any of the nonblank grid cells, a screen will pop up listing the risks in that grid cell. This can be used to quickly identity which risks are present in each category.

3. Risk Detail Screen

By clicking on the ID of any of the listed risks in the pop-up, a full screen display in the short-form format will come up, showing all of the risk fields as well as the mitigation plan and historical events tables.

X. View Retired Risks Screen

Retired risks are those that have been removed from the list of active risks and placed in the retired risks list. This screen provides a one-line description along with a few pertinent data fields for each retired risk. See the description of the **Retire Risks** button under the **Edit Risks Long Form Screen** for a detailed discussion.

To see the details about a retired risk, click on its ID, and the **Retired Risk Detail** screen will pop up which shows the risk information in short-form format. You cannot edit this data.

A retired risk is not actually in a separate table, but its Status field has been changed to "Retired" which makes it show up on the list of retired risks instead. It is possible to restore a retired risk to active status, but this requires that you enter into the risk database table itself in MS Access, open the table **tblRisk,** and then change the value of the Status field in the appropriate risk record to one of the status categories in the Set Up Project screen, such as "mitigate."

XII. Prioritize Risks Screen

The key purpose behind any risk management tool is to help you track and mitigate those risks with the greatest threat to your project. Since most projects have limited resources, not all risks can be actively mitigated all the time. The problem is dynamic because the importance of most risks will change over time or be influenced by external forces that are not in your control. What was an important risk one week might be less critical the next or might have been upstaged by other risks. In most organizations, a set number of risks, such as 10 or 20, are actively being mitigated at any one time. It is critical to know what the highest-priority risks are and how they stack up against the others. The Prioritize Risks form is designed to help you make these decisions.

Note that new risks created with the Edit Risks Long Form screen will have a default rank of zero (unless the user changes it) and will thus be shown at the top of the list. Zero is not a valid ranking, but it provides visibility to those risks that have not been fully evaluated and ranked. It is also possible for more than one risk to have the same rank (for instance, if the user edited the rank field and set the number by hand, or if a risk were imported from another database), or for there to be missing rank numbers (which might occur if a risk were retired or deleted). That is not important when first coming into this screen, but you should not exit this screen without making sure all risks are ranked properly and sequentially. The only way to ensure this is to click on the "Renumber Ranking" button after prioritizing the risks on the screen in the order you want (see discussion below). You have a great deal of flexibility in assigning rank and priority in Risk Radar; but it is important that you maintain the ranking of all risks on a regular basis using this screen to ensure there are no zero rank numbers, no missing rank numbers, and no duplicate rank numbers.

When the Prioritize Risks screen first comes up, risks will be presented one to a line, sorted according to rank (shown in blue) with the highest priority at the top. Using this form, you can explore different orderings of the risks by reordering them on the screen, irrespective of their current priority ranking, before committing to a new priority ranking. This screen provides two automatic ordering buttons and a manual method for reordering risks. The screen also allows you to edit values, so you can change values for any of the visible fields here, including probability, impact, and rank. Note that changing values on this screen automatically changes them in the underlying database.

Exposure Button

> The **Exposure** button at the top of its column will automatically sort all risks according to their risk exposure. This is the most common way to prioritize risks because the probability and impact numbers are used to quantify the overall risk exposure, which is a single measure of relative risk.

Rank Button

The **Rank** button at the top of its column will automatically sort all risks according to rank. This is the default ordering of risks when the screen first appears. You can also change the rank of a risk by editing its rank field and then clicking on the **Rank** button to move it to a new position. If you have not changed the actual rank numbers of any risks, this button allows you to return the risks to the original order when you started. This can be useful for undoing a series of changes when you might want to explore another prioritization of the risks.

Move Column

Although the risk exposure parameter (which is automatic ally calculated by Risk Radar by multiplying probability and impact) can help you rank a risk relative to the others, you should keep in mind that this is not a completely objective value and that ranking risks necessarily involves the subjective expert option based on professional experience. While there are other important factors, such as Impact Horizon, that might be important, there could be completely subjective reasons for ranking one risk higher than another, such as "The boss thinks this one is the most important." There are also likely to be risks that have the same risk exposure, and therefore need to be ranked relative to one another.

The Move column allows complete flexibility in ordering the risks. Using this column, you can move individual risks up or down in the list. Place the letter "m" (for MOVE) in the first column of a risk to mark it for movement. Then place the letter "a" (for AFTER) or "b" (for BEFORE) in the first column of another risk where you want it moved. Once the risk has been moved, these letters are automatically erased to be ready for the next move.

Renumber Ranking Button

Once you are satisfied with the new priority of risks represented by their ordering from top to bottom on the screen, their rank can be changed appropriately by clicking on the **Renumber Ranking** button. This will renumber the rank of each risk according to its current order on the screen. Note that once this operation has taken place, the rank cannot be automatically returned to its previous state. This is the only way to ensure that there are no risks with a rank of zero, none with duplicate rank numbers, or that none of the rank numbers is missing.

If you leave this screen without clicking on this button or without changing any of the rank numbers manually, the risks will have the same rank as when you started.

XIII. Reports Screen

1. Description

This screen offers three groups of sample reports. The group titled **Detailed Report** prints out reports witheach risk starting on a new page. The group titled **View Graphs** prints out risks in a viewgraph format. The group titled **Summay Report** prints out a much shorter version with each risk on a new line. The risks in these reports are sorted according to the criteria specified, for instance by risk ID or rank.

Clicking on one of these buttons will generate a standard MS Access print preview of the report. If you are satisfied with the report, click on File and then Print (or the printer icon) to send the report to the printer.

2. Exporting Reports to MS Word or MS Excel

There are other options for capturing a report so it can be used in another document or processed further, for instance, as an MS PowerPoint file.

Text Output

If you have the "Generic/Text Only on File" MS Windows printer option selected as the printer in the print window, you can send the text portion of the report to a file in ASCII format. The text can then be formatted or processed further by a variety of applications. Another method is to click on File, then Output To, and then choose the MS-DOS text option.

MS **Word or** MS Excel **Output**

To capture a report in MS Word or MS Excel format, click on File, then Output To, which provides a list of options. Choose "Rich Text Format" to save the report in an RTF format file, which can be read by MS Word or another word processor, and which roughly approximates the format of the report on the screen.

To capture the data used in the report, click on File, then Output To, and then select the MS Excel option. The data will be saved in a .XLS file, which can be further processed by MS Excel or other spreadsheets.